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EXAMINER
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* WAYNE F. REED<sup>1</sup>

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Appeal 2015-007173  
Application 12/479,052  
Technology Center 1700

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Before CHUNG K. PAK, JEFFREY T. SMITH, and  
WESLEY B. DERRICK, *Administrative Patent Judges*.

DERRICK, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134(a) from the Examiner's maintained final rejection of claims 1–12, 14, 73, 74, 82, 91, and 94–118. We have jurisdiction pursuant to 35 U.S.C. § 6(b).

We AFFIRM-IN-PART and enter a NEW GROUND OF REJECTION pursuant to 37 C.F.R. § 41.50(b).

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<sup>1</sup> According to Appellant, the Real Parties in Interest are The Administrators of the Tulane Educational Fund, and the inventor, Wayne F. Reed. Appeal Brief filed February 23, 2015, (“App. Br.”) 4.

### CLAIMED SUBJECT MATTER

Appellant's claimed invention is generally directed to a method of monitoring the evolution of polymer and/or colloid stimuli responsiveness during synthesis of stimuli-responsive polymers and/or stimuli-responsive colloids, and to an apparatus comprising a plurality of the same type of monitoring devices for monitoring the same characteristics of polymers and/or colloids during their synthesis. Spec. Abstract; claims 1, 73, 113, and 115.

Claims 1 and 73 are illustrative:

1. A method of monitoring the evolution of polymer and/or colloid stimuli responsiveness during synthesis of stimuli-responsive polymers having stimuli responsiveness and/or stimuli-responsive colloids having stimuli responsiveness, comprising:
  - a) providing a reactor in which stimuli-responsive polymers having stimuli responsiveness and/or stimuli-responsive colloids having stimuli responsiveness are synthesized;
  - b) providing a stimuli responsiveness monitoring device for monitoring the stimuli responsiveness of the polymers and/or colloids during said polymer and/or colloid synthesis; and
  - c) using the stimuli responsiveness monitoring device, monitoring the evolution of stimuli responsiveness of the polymers and/or colloids during said polymer and/or colloid synthesis by noting stimulus or stimuli applied and the response of the polymers and/or colloids to that stimulus or stimuli.
73. Apparatus comprising:
  - a reactor in which polymers and/or colloids are synthesized;
  - a device for withdrawing a stream or streams from the reactor; and
  - a plurality of the same type of monitoring devices for monitoring the polymers and/or colloids in the stream or

streams during said synthesis, the monitoring devices each monitoring the same characteristics of the polymers and/or colloids.

App. Br. 24, 26 (Claims Appendix.)

## REJECTIONS

The Examiner maintains the following final rejections<sup>2</sup>:

Claims 73, 74, 82, 93–96, 113, 114, 117, and 118 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter that Appellant regards as the invention.<sup>3</sup>

Claims 1–12, 14, 73, 74, 82, 91, and 94–118 under 35 U.S.C. § 102(b) as anticipated by Reed (US 6,653,150 B1, issued November 25, 2003).

## DISCUSSION

On the record before us, we are unpersuaded that the Examiner erred in rejecting claims 73, 74, 82, 94–96, 113, 114, 117, and 118 under 35 U.S.C. § 112, second paragraph and we further determine that claims 1–12, 14, 91, 97–112, and 115–118 are indefinite and, thus, enter a new ground under 35 U.S.C. § 112, second paragraph. We procedurally reverse the

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<sup>2</sup> Examiner's Answer entered May 28, 2015 ("Ans.").

<sup>3</sup> Although the Examiner includes only claims 113, 114, 117, and 118 in this ground of rejection in the Final Office Action entered September 14, 2014, ("Final Act." 2–3), the Examiner indicates in the Answer that claim 73 and "its dependent claims" should have been included in this rejection "for the same rationale." Ans. 9. Appellant responds to this "new ground" of rejection in the Reply Brief filed July 27, 2015, ("Reply Br.") 4–5. Therefore, independent claims 73 and 113, and all claims depending from these independent claims, are included in this ground of rejection.

Examiner's rejection of claims 1–12, 14, 73, 74, 82, 91, and 94–118 under 35 U.S.C. § 102(b). We add the following for clarity and explanation.

Independent claims 73 and 113 recite “a plurality of the same type of monitoring devices” that each monitor “the same characteristics” of polymers and/or colloids during synthesis. We find the Examiner's position that the metes and bounds of the recited “same type of monitoring devices” where each monitor “the same characteristics” cannot be ascertained from Appellant's original disclosure to be well-founded. Final Act. 2.

Section 112, second paragraph, requires that “[t]he specification . . . conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” “As the statutory language of ‘particular[ity]’ and ‘distinct[ness]’ indicates, claims are required to be cast in clear—as opposed to ambiguous, vague, indefinite—terms.” *In re Packard*, 751 F.3d 1307, 1313 (Fed. Cir. 2014).

Our reviewing court has held that when the USPTO has initially issued a well-grounded rejection that identifies ways in which the language in a claim is ambiguous, vague, incoherent, opaque, or otherwise unclear in describing and defining the claimed invention, and thereafter the applicant fails to provide a satisfactory response, the USPTO can properly reject the claim as failing to meet the statutory requirement that the claims be definite. *Id.* at 1313–1314. The court explained a satisfactory response can take the form of modification of the language identified as unclear, a separate definition of the unclear language, or, in appropriate circumstances, “persuasive explanation for the record of why the language at issue is not actually unclear.” *Id.* at 1311.

Although Appellant asserts that paragraphs 40 and 45–48 of the instant Specification as published<sup>4</sup> explain the meaning of “a plurality of the same type of monitoring devices” that each monitor “the same characteristics” (Reply Br. 4–5), we are unable to ascertain from this portion of Appellant’s Specification what Appellant intends to encompass by these phrases, and are thus unable to ascertain the scope of what they include or exclude. Specifically, these paragraphs of Appellant’s Specification do not clarify whether “a plurality of the same type of monitoring devices” that each monitor “the same characteristics” refers to, for example, a plurality of identical devices that each measure identical characteristics; refers to devices that are not identical, but measure identical characteristics (e.g. a differential scanning calorimeter or a dynamic mechanical analysis instrument to measure glass transition temperature); or refers to devices that are not identical, but function to measure different characteristics considered to be encompassed within the same general characteristic (e.g. a UV-visible spectrophotometer or an infrared spectrophotometer to measure UV-visible or near-infrared absorbance, which are encompassed within the general characteristic of absorption of electromagnetic radiation).

Accordingly, we find that Appellant does not persuasively explain with sufficient specificity why the relied-upon paragraphs of the Specification circumscribe the scope of protection sought by the phrases at issue. Therefore, we sustain the Examiner’s rejection of claims 73, 74, 82, 94–96, 113, and 114 under 35 U.S.C. § 112, second paragraph.

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<sup>4</sup> Citations to Appellant’s Specification throughout this Decision refer to the published patent application, US 2009/0306311 A1, published December 10, 2009.

As to the recitation of “high stimuli responsiveness” in claims 117 and 118, we likewise are unpersuaded by Appellant’s proffered argument and evidence. Relying on the Declaration of Wayne Reed submitted to the Patent Office on July 5, 2013, Appellant contends that one of ordinary skill in the art would understand the meaning of stimuli-responsive polymers and/or colloids having “high stimuli responsiveness.” App. Br. 12–13. The Reed Declaration, however, fails to provide sufficient guidance or a standard for ascertaining what constitutes the degree of stimuli-responsiveness necessary to meet “high stimuli responsiveness” as these are used in the Specification. The Reed Declaration sets forth that “stimuli responsiveness” has an understood meaning in the art, and that only a “small subclass of polymers are actually stimuli responsive” (Reed Declaration 1, ¶¶ 1–2, citing ¶ 235 of the published application), but the cited paragraph 235 itself is inconsistent with the relied on understood meaning in the art because it sets forth the factors that affect polymers’ interactions, and the types of interactions, by way of non-limiting exemplary listings (discussed in further detail below). Where terms of degree require some measure from a baseline, but the baseline of what is not considered to be stimuli responsive is not sufficiently defined, the Examiner’s indefiniteness rejection of claims 117 and 118 are well-founded. *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370–71 (Fed. Cir. 2014) (terms of degree require some measure from a baseline.); *see also Seattle Box Company, Inc. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 826 (Fed. Cir. 1984).

Therefore, we sustain the Examiner’s rejection of claims 117 and 118 under 35 U.S.C. § 112, second paragraph.

Regarding the new ground, we are also unable to ascertain the scope of what is encompassed by the “stimuli-responsive polymers” recited in independent claims 1 and 115. Appellant’s Specification does define “stimuli-responsive polymers” as “one or more of the diverse types of behaviors that polymers and/or colloids can manifest, depending on their own structure, composition and other macromolecular and chemical characteristics, the conditions of their synthesis, and the details of the environment where they may be synthesized, transferred to, or otherwise used or applied,” and this portion of the Specification goes on to provide numerous non-limiting examples of “such behaviors.” Spec. ¶ 14. However, this definition does not clearly delimit the “diverse behaviors” that characterize stimuli-responsive polymers because it sets forth only exemplary, non-limiting behaviors that stimuli-responsive polymers may exhibit. *Id.* Thus, this definition does not indicate or describe with particularity behaviors that characterize stimuli-responsive polymers. Moreover, we find no guidance in Appellant’s Specification that distinguishes “stimuli-responsive polymers” from polymers that are not “stimuli-responsive,” and find no meaningful clarification of any difference between the two types of polymers. Accordingly, Appellant’s Specification does not clearly set forth which polymers are included or excluded by the “stimuli-responsive polymers” recited in claims 1 and 115. *Amgen, Inc. v. Chugai Pharm. Co., Ltd.*, 927 F.2d 1200, 1217 (Fed. Cir. 1991) (A claim is considered indefinite under 35 U.S.C. § 112, second paragraph, if it does not reasonably apprise those skilled in the art of its scope).

Although Appellant appears to contend that the Declarations of inventor Wayne Reed submitted to the Patent Office on July 5, 2013, and



September 2, 2014, clarify the meaning of “stimuli-responsive polymers,” we find no such clarification in either Declaration. App. Br. 12–13, 15–16, 20–21. Instead, the Declarations both indicate that paragraph 235 of Appellant’s published application explains in detail that stimuli-responsive polymers are a very small subclass of polymers. July 5, 2013, Declaration 1, ¶¶ 1–2; September 2, 2014 Declaration 2, ¶ 3. This paragraph of Appellant’s Specification broadly describes “more ‘intelligent’ functions” that can be performed by “[p]recisely engineered complex and architecturally sophisticated polymers” in contrast to “traditional polymers,” but describes the factors that affect polymers’ interactions, and the types of interactions, by way of non-limiting exemplary listings and so this paragraph does not define the distinction to be made, and how to distinguish, between stimuli-responsive polymers and polymers that are not stimuli-responsive. Thus, this paragraph does not provide sufficient guidance as to what is encompassed by the “stimuli-responsive polymers” recited in claims 1 and 115. Spec. ¶ 235; *see also* ¶ 14 (discussed above). Further, while the Specification fails to provide a clear distinction between stimuli-responsive and normal (non-stimuli-responsive) polymers, it does provide a special meaning of the phrase and that meaning is contrary to that set forth by Appellant as being limited to a small subclass of polymers. *Cf. Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) (When the Specification sets forth a special meaning of the claim term, it must be given that special meaning).

Accordingly, we cannot ascertain the scope of the subject matter encompassed by claims 1–12, 14, 91, 97–112, and 115–118, and we, thus,

enter a new ground of rejection as to these claims under 35 U.S.C. § 112, second paragraph.

Having added this new ground of indefiniteness to those of the Examiner, which we sustain, all pending claims now stand rejected under 35 U.S.C. § 112, second paragraph.

It necessarily follows that we are unable to determine the propriety of the Examiner's § 102(b) rejection because to do so would require considerable speculation with regard to the metes and bounds of the claimed subject matter. *In re Steele*, 305 F.2d 859, 862 (CCPA 1962) ("Our analysis of the claims indicates that considerable speculation as to meaning of the terms employed and assumptions as to the scope of such claims were made by the examiner and the board. [W]e do not think a rejection under 35 U.S.C. § 103 should be based on such speculations and assumptions."); *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970) ("If no reasonably definite meaning can be ascribed to certain terms in the claim, the subject matter does not become obvious—the claim becomes indefinite."). Therefore, we procedurally reverse the rejection of claims 1–12, 14, 73, 74, 82, 91, and 94–118 under 35 U.S.C. § 102(b).

In doing so, we emphasize that we do not take any position on the merits of the underlying prior art rejection, and upon clarifying the indefinite language in the claims, we will consider such rejection based on the prior art of record, if maintained by the Examiner and then brought before us again on appeal.

## CONCLUSION

The Examiner's rejections of claims 73, 74, 82, 94–96, 113, 114, 117, and 118 under 35 U.S.C. § 112, second paragraph are AFFIRMED.

The Examiner's rejection of claims 1–12, 14, 73, 74, 82, 91, and 94–118 under 35 U.S.C. § 103(a) is procedurally REVERSED.

Pursuant to 37 C.F.R. § 41.50(b), we enter a NEW GROUND OF REJECTION against claims 1–12, 14, 91, 97–112, and 115–118 under 35 U.S.C. § 112, second paragraph as being indefinite.

Section 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” Section 41.50(b) also provides:

When the Board enters such a non-final decision, the appellant, within two months from the date of the decision, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. The new ground of rejection is binding upon the examiner unless an amendment or new Evidence not previously of Record is made which, in the opinion of the examiner, overcomes the new ground of rejection designated in the decision. Should the examiner reject the claims, appellant may again appeal to the Board pursuant to this subpart.

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. The request for rehearing must address any new ground of rejection and state with particularity the points believed to have been misapprehended or overlooked in entering the new ground of rejection and also state all other grounds upon which rehearing is sought.

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Further guidance on responding to a new ground of rejection can be found in the Manual of Patent Examining Procedure § 1214.01.

AFFIRMED-IN-PART; NEW GROUND OF REJECTION  
PURSUANT TO 37 C.F.R. § 41.50(b)